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<b>Substitute for form 1449A/PTO</b>  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  <i>(use as many sheets as necessary)</i>				<b>Complete if Known</b>	
				<b>Application Number</b>	10/029,158
				<b>Filing Date</b>	December 21, 2001
				<b>First Named Inventor</b>	Suh, et al.
				<b>Group Art Unit</b>	3723
				<b>Examiner Name</b>	not assigned
<b>Sheet</b>	1	<b>of</b>	2	<b>Attorney Docket Number</b>	A-69175-1/MSS

U.S. PATENT DOCUMENTS						
Examiner Initials*	Cite No. <sup>1</sup>	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code <sup>2</sup> (if known)			
FA          V		5,716,258		Robert L. Metcalf	02/10/98	
		5,851,140		Barnes, et al.	12/22/98	
		5,916,015		John Natalicio	06/29/99	
		5,980,367		Robert L. Metcalf	11/09/99	
		5,993,302		Chen, et al.	11/30/99	
		6,024,630		Shendon, et al.	02/15/00	
		6,068,549		Paul Jackson	05/30/00	
		6,206,768	B1	Sebastian Ser Wee Quek	03/27/01	
		6,290,577	B1	Shendon, et al.	09/18/01	

FOREIGN PATENT DOCUMENTS								
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		Office <sup>3</sup>	Number <sup>4</sup>	Kind Code <sup>2</sup> (if known)				

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<b>OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS</b>			
<b>Examiner Initials*</b>	<b>Cite No.<sup>1</sup></b>	<b>Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.</b>	<b>T<sup>2</sup></b>

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		<b>Application Number</b>	10/029,158		
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		<b>First Named Inventor</b>	Nam P. Suh		
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		<b>Examiner Name</b>	To be Assigned		
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		Number	Kind Code <sup>2</sup> (if known)			
A		4,959,113		John V. H. Roberts	September 25, 1990	
		5,069,002		Sandhu, et al.	December 3, 1991	
		5,433,651		Lustig, et al.	July 18, 1995	
		5,486,129		Sandhu, et al.	January 23, 1996	
		5,605,488		Ohashi, et al.	February 25, 1997	
		5,672,091		Takahashi, et al.	September 30, 1997	
		5,676,587		Landers, et al.	October 14, 1997	
		5,770,103		Wang, et al.	June 23, 1998	
		5,835,225		Randhir P. S. Thakur	November 10, 1998	
		5,838,448		Aiyer, et al.	November 17, 1998	
		5,840,629		Roanld A. Carpio	November 24, 1998	
		5,897,375		Watts, et al.	April 27, 1999	
		5,916,016		Subhas Bothra	June 29, 1999	
		5,953,115		William Francis Landers	September 14, 1999	
		5,954,997		Kaufman, et al.	September 21, 1999	
V		5,964,643		Birang, et al.	October 12, 1999	
		5,964,653		Perlov, et al.	October 12, 1999	

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		Office <sup>3</sup>	Number <sup>4</sup>	Kind Code <sup>2</sup> (if known)				
		EP	0881484	A2	LAM Research Corporation	02 December 1998		
		WO	99/02304	A1	Applied Materials, Inc.	21 January 1999		

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		Application Number	10/029,158		
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		First Named Inventor	Nam P. Suh		
		Group Art Unit	3723		
		Examiner Name	To be Assigned		
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		Number	Kind Code <sup>2</sup> (if known)			
[Signature]		5,972,787		Boggs et al.	October 26, 1999	
		5,985,679		Michael J. Berman	November 16, 1999	
		5,985,748		Watts, et. al.	November 16, 1999	
		6,001,730		Farkas, et al.	December 14, 1999	
		6,004,187		Nyui, et al.	December 21, 1999	
		6,036,587		Tolles et al.	March 14, 2000	
		6,046,111		Karl M. Robinson	April 4, 2000	
		6,056,632		Mitchel, et al.	May 2, 2000	
		6,062,133		Guy Blalock	May 16, 2000	
		6,062,952		Robinson, et al.	May 16, 2000	
		6,063,306		Kaufman, et al.	May 16, 2000	
		6,068,539		Bajaj, et al.	May 30, 2000	
		6,071,177		Lin, et al.	June 6, 2000	
		6,074,287		Miyaji, et al.	June 13, 2000	
		6,077,452		Herbert E. Litvak	June 20, 2000	
		6,179,956	B1	Nagahara, et al.	January 30, 2001	
		6,204,922	B1	Scott A. Chalmers	March 20, 2001	
	[Signature]		6,238,590	B1	Fischer, et al.	May 29, 2001
		6,257,953	B1	Gitis, et al.	July 10, 2001	
		6,290,584	B1	Kim, et al.	September 18, 2001	

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OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS			
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✓		Adams, et al., "Process Control and Endpoint Detection with Fullscan ISRM System in Chemical Mechanical Polishing of Cu Layers," CMP-MIC, March 2000, 5 pages	
		Bonner et al., "Removal Rate, Uniformity and Defectivity Studies of Chemical Mechanical Polishing of BPSG Films," MRS, Spring 2000, 6 pages	
		Garretson et al., "New Pad Conditioning Disk Design Delivers Excellent Process Performance While Increasing CMP Productivity," CMP Technology for ULSI Interconnection, SEMICON West 2000, 9 pages	
		Osterheld et al., "A Novel Retaining Ring in Advanced Polishing Head Design for Significantly Improved CMP Performance," MRS, April 5-9, 1999, 8 pages	
		Römer et al., "STI CMP Using Fixed Abrasive Demands, Measurement Methods and Results," CMP-MIC, March 2000, 10 pages	
		Surana et al., "Defectivity Reduction in Copper CMP Processes," VMIC, June 2000, 3 pages	
✓		Tang, et al., "Novel Integrated Single Wafer Immersion Megasonics for Advanced Post CMP Cleaning in a Next Generation Dry-in Dry-out CMP System," CMP-MIC, March 2000, 5 pages	

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